DOCUMENT RESUME

ED 261 080 TM 850 484

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TITLE Conceptualization for Evaluation and Planning.
PUB DATE Oct 84
NOTE 124p.; Paper presented at the Joint Meeting of the Evaluation Network and the Evaluation Research Society. (San Francisco, CA, October 10-13, 1984).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143) -- Tests/Evaluation Instruments (160)

EDRS PRICE MF01/PC05 Plus Postage.
DESCRIPTORS Ancillary School Services; *Cluster Grouping; Concept Formation; Evaluation Criteria; *Evaluation Methods; Evaluation Utilization; Higher Education; *Models; *Planning; *Program Development; *Program Evaluation; School Health Services
IDENTIFIERS Cornell University NY; *Structured Conceptualization

ABSTRACT

Both evaluation and planning typically begin with an attempt to define the conceptual territory of interest; this paper presents an approach to such conceptualization. The term, structured conceptualization, is used to refer to any definable set of procedures which can help a user develop a useful conceptual representation. Structured conceptualization refers to the behavioral steps followed by the evaluator or planner, not his or her internal cognitive processes. The three components of the conceptualization process, which may be combined to suggest different models, are defined: (1) the process steps--generation, structuring, and representation of the conceptual domain; (2) the perspective origins--the process may be carried out by an individual, group, or algorithm; and (3) the representation form--a verbal essay, outline, or lecture; a pictorial flow chart or graph; or a mathematical formula or model. Four different models which may result from these alternatives are described. The most structured of these models is illustrated using two examples, each an administrative unit which provides services to the university community: The Division of Campus Life, and the University Health Service at Cornell University. Extensive appendices include questionnaires and clusters resulting from suggestions concerning these programs. (GDC)

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# Conceptualization for Evaluation and Planning

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RUNNING HEAD: Conceptualization for Evaluation and Planning

Paper presented at the Annual Joint Conference of the Evaluation Research Society and the Evaluation Network, San Francisco, California, October, 1984.

TM 850 484

# Conceptualization for Evaluation and Planning

Evaluation and planning are separate but related endeavors which can be used to gain a greater understanding of an organization or a program. Evaluation tends to focus on the past and the present and typically attempts to determine how a program or organization operates and what effects it may have on other factors of interest. Planning involves an attempt to look into the future and to determine how the organization or program can approach that future.

Both evaluation and planning typically begin with some attempt to define the conceptual territory of interest. In evaluations we often try to specify the purposes of the study, the hypotheses, the constructs, and the key variables. In planning we try to understand the organizational or programmatic mission, goals, purposes, or objectives. All of these involve attempts to conceptualize and to represent the conceptualization, usually in written form, so that others may understand what the evaluator or planner has done.

Unfortunately, there has been almost no discussion in either the evaluation or planning literatures about how one might accomplish this critical first phase of either process. The implicit assumption often is that the conceptualization will somehow magically emerge from a logical analysis of the problem at hand with perhaps some additional input from organizational or program managers,

staff or constituent groups.

What is missing is a methodology for conceptualizing. Of course, conceptualization is ubiquitous and we would expect that it has been a topic of interest in almost every field of intellectual endeavor. Of particular relevance for evaluation and planning are the attempts to develop methods for conceptualizing in the fields of measurement (e.g., the work of Guttman (1979) and colleagues (Borg (1979)) on facet theory and smallest space analysis; Block (1978) on Q-methodology; and the vast literature on scaling of subjective information); education (e.g., the concept mapping and knowledge Vee diagramming suggested by Novak and Gowin (1984)); work in on organizational approaches to problem definition); and even writing (e.g., the clustering and trial web approach described by Rico (1983)). While these attempts are noteworthy and valuable, they are almost never utilized in evaluation and planning contexts, and there is no general theory of conceptualization methods which can serve as a basis for comparing the methods and devising new ones.

This paper describes our ongoing efforts to develop a general approach to conceptualization methods. We use the term "structured conceptualization" to refer to any specifiable or definable set of procedures which can help a user develop a useful conceptual representation. All of the techniques mentioned above fall under this definition and presumably many more can be devised. In the following discussion we outline what is meant by structured

conceptualization, discuss two evaluation and planning studies in which structured conceptualization techniques were applied, and consider some of the implications of such techniques for evaluation and planning generally.

## Structured Conceptualization

The term "structured conceptualization" refers to specifiable, definable processes which can be used to organize thinking and to represent it for others to see. Structured conceptualization is not concerned with the internal cognitive processes which an individual may be using, but instead describes the external, behavioral steps which are followed.

### COMPONENTS

The Basic Units. The structured conceptualization process begins with initial thoughts, intuitions, ideas, theories, or problem statements. The term entities refers to each distinguishable thought or idea expressed verbally as a word, phrase, sentence, or other text unit. Entities form the basic building blocks of the conceptualization and represent the smallest unit of meaning which the conceptualizer wishes to consider in a given setting. Concepts may be either individual entities or groups of entities. Finally, a conceptualization is a grouping of concepts and/or entities. Generally, entities are more restricted units

of meaning than concepts, which are in turn more restricted than conceptualizations.

The Process Steps. The process of moving from initial entities to a conceptual representation involves the following steps:

1. Generation (G) of the conceptual domain. The domain is the set of the entities which are included in a given conceptualization.
2. Structuring (S) of the conceptual domain. Relationships between and among the entities are defined or estimated.
3. Representation (R) of the conceptual domain. The structured set of entities is represented verbally, pictorially or mathematically.

Each step may be conducted separately or performed together with an adjacent step.

Perspective Origins. Conceptualizations always result from a particular perspective. For instance, the process may be carried out by an individual (i) leading to a representation which reflects that person's perspective. Alternatively, a group or several groups (g) of people may work together to develop a conceptualization. Finally, in some cases, steps in the conceptualization process may be carried out "automatically" through the use of some predetermined algorithm (a). In this last case, the conceptualization will, at least in part, reflect the perspectives of those who constructed the algorithm.

The Representation Form. The result of a structured conceptualization process is a representation. Conceptualizations may be represented in any or all of three forms: verbal (V), pictorial

(P), or mathematical (M). A written essay or outline, or an oral lecture are examples of verbal (V) conceptual representations. A flow chart or graph is a pictorial (P) representation. Mathematical (M) representations usually consist of a written model or formula.

## MODELS

These basic components of the conceptualization process -- the process steps (G, S, R); the perspective origins (i, g, a); and the representation form (V, P, M) -- can be combined in many different ways to suggest different models which could be followed to structure the conceptualization process. This is shown in Figure 1 which depicts the components in all possible combinations. The figure is vertically divided into three columns which represent the three process steps, and four rows which represent the four general classes or types of models. Each of these model types consists of process steps carried out either individually or together with adjacent steps. In all cases, the process moves from left to right in the figure, beginning with initial thoughts, intuitions and ideas, and ending with one or more representations of the conceptualization. Parentheses indicate steps in the model type which are accomplished simultaneously. For example, the process (G)(SR) describes a two-phase model type where the first step involves entity generation (G) and the second incorporates both structuring (S) and representation

(R) in a single step. Each functionally separate step in a model can be carried out from a different perspective origin (i, g, a) which is indicated by using subscripts in the notation.

A complete specification of all the components in a given structured conceptualization is termed a model. To construct a specific model, one begins by selecting one of the four model types (i.e., rows on the figure). For each parenthetical term in the model type one then selects a perspective origin which indicates who (i.e., an individual, group, or algorithm) will conduct that part of the model. Finally, the representation form for the conceptualization is chosen. It is convenient to group models by the four model types as follows:

Model Type I: (GSR)

Here all three steps are accomplished together (at least from an external point of view). If an individual simply thinks about some topic and writes an essay on it, this model might be represented as

$$(GSR)_i \text{ --> } V$$

Notice the (GSR) is the general model type while the formula above depicts one of its many specific models. In this case, the model is characterized by an individual perspective origin (indicated by the subscript i) and a verbal (indicated by the V) representation form. As another example, if a group of people think about a particular topic area and directly collaborate on a problem statement the specific model could be depicted as:

$$(GSR)_g \text{ --> } V$$

Model Type II: (G)(SR)

In this model type, the structuring and representation steps are accomplished together. For instance, the process might begin with a group of people generating a set of entities which describe the conceptual domain. In the second step an individual might use this set directly to draw a flow chart or write a descriptive summary. We could express this process with the notation:

$$(G)_g(SR)_i \text{ --> } V,M$$

In the process of moving from the set of entities to the representations, the individual probably did some cognitive structuring of the information, but from an objective point of view the structuring and representation steps are not functionally distinguishable.

Model Type III: (GS)(R)

Here the conceptual domain is generated within the context of a known structure. For instance, if a group of people generated entities for specific key concepts, the initial domain would be assumed to have a known structure from the very beginning. In the second phase, the group might draw a map by placing the entities on the map grouped by the concepts. We might summarize this model with the notation:

$$(GS)_g(R)_g \text{ --> } P$$

The key in this model type is that the generation and structuring are accomplished together.

Model Type IV: (G)(S)(R)

This is the most structured model type of the four because it assumes that the three process steps are performed separately. For instance, the sequence could begin with an individual generating the set of entities. In the second step a group of people could structure these entities. Finally, an algorithm could be used to represent the structured domain by automatically drawing a map which reflects the structure. We could describe this model with the notation:

$$(G)_i(S)_g(R)_a \text{ --> } P$$

Summary. Structured conceptualization provides a framework for devising many different models which can be used to achieve a conceptual representation tailored to specific contexts. For each step in the process, the procedures which can be followed are limited primarily by the imagination of the conceptualizer. The general approach involves constructing a structured conceptualization model which will result in a verbal, pictorial or mathematical representation by combining process steps with perspective origins.

## EXAMPLES

In this part of the paper we illustrate one structured conceptualization model using two examples. In both of the organizations which are involved, the conceptualization task is part of a larger evaluation and planning process. The examples are presented in great detail for several reasons: it is important to document the work; a "feel" for the process can only be achieved by careful consideration of the steps involved; and, detailed descriptions are useful for anyone who might consider trying such a study.

### The Division of Campus Life Study

The Division of Campus Life (DCL) is the administrative unit at Cornell University which is responsible for delivering

a great variety of services to the university community. It is comprised of eleven different departments[1] which vary according to size, organizational structure, kinds of professional staff, and type of service/function performed. Unified evaluation and planning is a real challenge not only for the administrative staff of the Division, but also for department directors and line staff.

As the first step of a projected on-going planning process, a structured conceptualization was carried out over a period of seven months from December, 1983 to June, 1984. The specific model which was constructed is taken from Model Type IV above and can be notated as:

$$(G)_g(S)_g(R)_a \dashrightarrow P$$

where:

$(G)_g$ is the Generation of entities by a group

$(S)_g$ is the Structuring of entities by a group

$(R)_a$ is the Representation of the structured entities by an algorithm

P is a picture, in this case, a concept map

The goal of the conceptualization process was to produce a conceptual framework in the form of a "concept map" which could be used

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[1]The departments are: Office of Assemblies; Campus Store; Cornell United Religious Work; Dining Services; Health Services; International Student Office; Public Safety; Residence Life; Office of the Dean of Students; Transportation Services; Unions and Activities.

as a central organizing device for the planning process. Involvement of a representative group of DCL staff in all aspects of the process was considered essential.

## Participants

DCL administrators asked each department to form a planning committee which included the department director as one member. Typically, the committee consisted of key upper and middle-level department administrators. All of these department planning committee members were asked by the DCL administration to attend joint meetings specifically for the purpose of working on the development of future plans. The conceptualization process was the main agenda item for four such Division meetings over a seven month period. Attendance at these meetings ranged from 35 to 70 people with the average attendance in the vicinity of 45 people. Most of the meetings were three hours in length.

## Procedure

Generation of Entities (G). At the first meeting, entities for the study were generated using brainstorming. The agenda for this meeting is given in Figure 2. The process began with the DCL mission statement. A priori it was decided that because of the number of people involved and the inherent difficulty of trying to conceptualize about so complex an organization, it would be useful to divide the mission statement into its

major themes or parts and to generate entities separately with each part in mind. Figure 3 is the mission statement with the three main concepts delineated by boxes. The process began by having each individual brainstorm about the three parts of the mission statement. Some general suggestions about brainstorming were given (Figure 4) as well as an entity sheet (Figure 5) on which they could enter their thoughts. This individual step was included to assure that small group brainstorming sessions would have some starting point. The individually-generated items were not used in the study unless the person entered them in one of the small group sessions which followed. Three twenty-minute small group brainstorming sessions were then held, one for each of the three parts of the mission statement. The small groups were randomly assigned for each of the three brainstorming sessions, thus insuring considerable variety of group membership. Each small group elected a scribe who had the responsibility of recording the entities on large sheets which were visible to all group members (see Figure 4 for the brief scribe instructions). A total of 876 entities (i.e., words, phrases or sentences) were generated across the three mission statement parts by a total of 75 DCL staff members who attended the meeting.

Because of the relatively large number of entities which were generated, it was decided that the total number would have to be reduced in order to make subsequent steps feasible. This made sense especially when we considered that there was likely

to be a great deal of redundancy in the 876 items because at any given time there were as many as eight separate small groups brainstorming on the same part of the mission statement. There were several principles which guided this entity reduction process. First, we wanted it to be conducted by the persons who participated in the item generation or some chosen, representative subgroup. Second, we wanted no alteration of the final selected items from their originally generated form, with the possible exception of minor typographical changes. Third, we wanted the persons who conducted the reduction to attempt to preserve as much of the meaning of the original total set as possible. A small committee was selected to complete this task and reduced the 876 items down to a final set of 137 entities. This is the set of entities which act as the conceptual domain for subsequent steps and is shown in Figure 6 in its entirety. These entities were typed onto separate index cards along with an identification number and 60 sets of the cards were duplicated for use in the next step.

Structuring of Entities (S). This step in the process was accomplished using an unstructured sorting procedure. Each person in the DCL planning group was asked to sort the 137 entity cards into piles "in a way that makes sense to you" with the only restrictions being that there could be neither N piles (i.e., 137) or one pile. Figure 7 gives the instructions for the sorting task. After the sorting into piles, each person was asked to

arbitrarily assign numbers to the piles and to record these pile numbers and the identification numbers of the entities which were sorted into the pile on the sheet shown in Figure 8. Finally, each person was asked to name or briefly describe each pile and to write that information on the sheet shown in Figure 9. A total of 43 people participated in this step.

For each person, a 137 x 137 binary, symmetric matrix, X, was constructed from the sort information where values in the matrix represent joint occurrances such that

$$X(i,j) = \begin{cases} 1 \text{ if entities i and j were sorted into the same pile} \\ 0 \text{ otherwise} \end{cases}$$

A total matrix, T(i,j) was then obtained by summing across the individual matrices. Thus any cell in this matrix could take integer values between 0 and N (in this case, N = 43) where the value indicates the number of people who placed the i,j pair in the same pile. Therefore, high values in this total matrix indicate pairs of entities which were consistently placed in the same piles, whatever these piles might have meant to the sorters. The assumption here is that high values imply greater conceptual similarity. This matrix constitutes the structure of the domain and is used as input to the next step.

Representation of the Structured Domain (R). Two general algorithms were used to produce the representation, in this

case, the concept map. First, a multidimensional scaling analysis (Kruskal and Wish, 1978; Davison, 1983) was conducted. Examination of Kruskal's Stress Value for one through five dimensional solutions indicated that a two-dimensional solution was not inappropriate.- Second, a hierarchical cluster analysis (Anderborg, 1973; Hartigan, 1975; Everitt, 1980) was conducted. Examination of the results of this analysis led to the selection of eleven major clusters of the 137 entities. These two analyses were combined to produce the final "concept map" which is shown in Figure 10. Each point on the map represents one of the 137 entities. The location of each point was determined by the multidimensional scaling algorithm. The symbol which is used to plot the point reflects the cluster which the entity is in as determined by the cluster analysis.

A third meeting of the DCL planning group was held for purposes of interpreting the results of the study. The agenda for this meeting is shown in Figure 11. Participants were given a list of the original 137 entities grouped according to their cluster. This list, included as Figure 12, shows the entity, identification number, and the correlation between the entity and its own cluster (note that the entities are shown on each page in declining order of correlation with the cluster). Each person was asked to read through the entities and to attempt to name or briefly describe each cluster, recording their responses on the sheet shown in Figure 13. Small groups were then randomly

formed in which individuals discussed and came to agreement on names for each cluster. Finally, in a general session, each small group gave its suggestion for cluster names and the entire group discussed and came to a consensus on one name for each cluster.

Each participant then entered the cluster name in the appropriate place on a cluster tree. Discussion was held about the meaning of the cluster tree and minor revisions to cluster names were made. This tree represents the hierarchical cluster analysis results and is shown, along with the final names, in Figure 14. A more detailed version of the concept map (Figure 15) which showed the exact location of each entity by identification number was then presented to enable a better linkage between the interpretation of the map and of the cluster results.

A fourth meeting of the entire DCL planning group was held (see Figure 16 for agenda) to continue the interpretation. The first task involved looking for regions (or "clusters of clusters") on the concept map. To do this, participants were given a cluster map (Figure 17) which showed the approximate location of each of the eleven clusters on the concept map. As in previous meetings, the process which was followed involved identifying regions first on an individual basis, then in small groups, and then through consensus of the whole group. Each region was then named or characterized in much the same way as the clusters had been. Given this new context for meaning, cluster names were open for revision,

although none was made. Figure 18 shows the instructions which were given.

The remainder of this meeting was devoted to examining potential uses of the conceptualization for the DCL planning process. To begin, a set of questions (Figure 19) was given which asked participants to think generally about the meaning of the concept map. Then, in an attempt to encourage the participants to develop their own schema for interpreting the map, two alternative representations were given. The first is termed the concept matrix (Figure 20) and shows a 2x3 classification of the clusters. This matrix was developed by examining the map and trying to interpret dimensions. For instance, examination of the entities moving from west to east on the map seemed to indicate that they changed in nature from more global value statements to more specific issue statements and finally to even more specific objectives and activities. Similarly, when entities are read moving from north to south on the map there seems to be a change from process oriented items (perhaps interpretable as more "managerially" oriented) to entities which reflect outcomes (or perhaps, services). Thus, the concept matrix can be thought of as a structure which can be overlaid onto the original concept map. The concept triangle shown in Figure 21 was developed in a similar manner. Here, the original concept map was turned on its side because it seemed to make sense that the more general, value-oriented statements which predominated in Cluster 1 belonged on top of more specific

items. Similarly, the distinction between management and services which was noted above in reference to the matrix was formalized here by assigning the bottom two corners of the triangle to these categories. The cluster names were located along this triangle in roughly their original position on the concept map. Both of these interpretations (Figures 20 and 21) were given as "suggestive" devices designed to stimulate thinking about the organization and its planning process. Perhaps as important was the desire to encourage participants to recognize that they could and should actively manipulate the map or any other representations until they were satisfied with them - even to the point of moving the locations of entities or clusters on the original map. Thus, the concept map was not portrayed as a fixed or final statement about the "true" thinking of the DCL group, but rather as an initial and tentative representation which had potential suggestive power and organizing capability.

To illustrate how the concept map could be used to help organize the planning process itself, we attempted to address a major problem - the development of a common reporting format for the departments. Given the variety among the departments, the Division needed a format which would preserve this variety and still enable interdepartmental comparisons. We began by looking at the concept map and the four regions which had been identified by the group. These were easily transformable into an outline as shown in Figure 22. Simalarly, the concept matrix

suggested two outline forms (depending on which dimension was given hierarchical preference) as shown in Figures 23 and 24. Any of these, and perhaps others, might be useful as general outlines which departments could follow in reporting to the Division. Alternatively, these could be used as the basis for discussion of more detailed or differently-structured outlines. The final task which the group undertook was the discussion of how to begin using the results of this conceptualization within the context of their individual departments. A list of discussion questions (Figure 25) was provided to stimulate the discussion and move the overall DCL planning process toward the next step which would focus more on department planning activities.

Impressions. Before proceeding to the next example it might be useful to describe some of the impressions which we had about how the DCL process operated. While we were generally very pleased with the overall process, there were three problem areas which we felt needed improvement in any subsequent attempts to apply this approach.

First, several of the decisions which we made about how to handle the entity generation and reduction may have had some negative consequences for the final product. For instance, our decision to use the DCL mission statement as an organizing device and then to divide this statement into three parts probably affected the types of entities which were generated during brainstorming. A careful examination of the concept map shows that

the entities on the left tended to be more general in nature than entities on the right. But the left-side entities also tend to be shorter -- most of them are a single word. The key question here is whether the participants sorted the entities more on the basis of meaning or of word length. If we had used a single brainstorming organizer (or none at all) the entities might have naturally been more similar in structure thus minimizing the likelihood that the structural characteristic was more salient than the semantic one. For instance, in the DCL situation we ultimately combined entities generated from all three parts of the mission statement. However, it seems possible that participants generated more general (or more single-word) terms to the "quality of life on campus" prompt than to the "development and maintenance of an environment" one. Whatever the case, it is clear that the specific instructions given at the entity generation stage of the conceptualization can have a profound effect upon the outcome. Another problem related to the generation of the domain involved the way in which the original set of 876 entities was reduced to 137 final items. Although the use of a committee to perform this task may be appropriate, in some ways it leaves the key decision-making criteria at the subjective level and reduces the overall accountability of the process.

A second problem with the DCL process concerned the length of time involved. The entire process was spread out over seven months. By the time the group reached the interpretation stage

there was some evidence of restlessness and desire to move the planning along to more task-oriented work. In addition, the long periods between meetings seemed to have the effect of minimizing the carry-over from one session to the next. People appeared to have some difficulty in comprehending where we were in the process and why. Perhaps more important, they often seemed to forget what had been done at the prior meeting and how they felt about it. By the time we began the interpretation stage, the climax of interest had already passed.

This leads to the third major problem in the DCL conceptualization. There was much too little time for interpreting the results and making the cognitive linkages to the planning process as a whole and to what the departments were doing specifically. We took almost an entire two-hour session simply tring to agree upon names for the eleven major clusters. This is not to say that the naming task is unimportant or should be shortened. On the contrary, we would argue that it is a central part of the integration of the results. Unfortunately, this part of the process took so long and was so involving that people were somewhat fatigued and sufficient attention was not given to looking at the concept map, matrix, triangle, and other interpretative materials which might have led to a better sense of closure for the group.

## The University Health Service Study

The University Health Service (UHS) study grew out of the DCL study described above; UHS is one of the eleven DCL departments. The UHS representatives to the DCL planning group participated in the DCL conceptualization and felt that such a procedure had potential value for their organization.

From the beginning, however, there were some important differences between the two conceptualizations. First, a major goal of the UHS process was the involvement of all of the approximately 100 staff members including maintenance staff, physicians, clerical staff, nursing staff, and administration. Second, we decided at the outset that the brainstorming procedure would be set up with clearer instructions concerning the types of entities which were desired. Finally. we had to complete the entire process -- from the initial brainstorming to the final interpretation on the concept map -- within a four week period during May of 1984.

Figure 26 shows the overall plan for the schedule for the conceptualization. The model which was used is the same as in the DCL study (Model Type IV) although the processes had a very different quality because of some of the above conditions.

## Procedure

Generation of Entities (G). The brainstorming was accomplished in three sessions over three successive days. A total of 77 people participated (26 on 5/8; 26 on 5/9; and 25 on 5/10). The participants were told (Figure 27) to "generate statements (phrases or sentences) which describe your view of what the University Health Services should be or should do." Thus at the outset the conceptualization was focussed on planning for the future. Each person was also given a copy of the UHS mission statement and goals (Figure 28) although they were not required or encouraged to use these in any way. A total of 315 entities were generated. The items were reduced to a final set of 100 entities by using a pseudo-random number generator to randomly select. The UHS administrator in charge of the project then examined this final set to see whether it seemed representative of the larger domain. No changes were made as a result of this examination. The final set of 100 entities is shown in Figure 29 in its entirety. These were typed on index cards along with their identification number and duplicate sets of the cards were made for use in the next step.

Structuring the Entities (S). An unstructured sorting procedure was used to accomlish this step. Each person was asked to sort the entity cards into piles "in a way that makes sense to you." The complete instructions for the sort are shown in Figure 30 along with the response sheet for recording pile numbers and

their entities and the sheet for assigning names to the piles. As in the DCL study, the results of the sort were compiled into a 100 x 100 binary symmetric matrix based on joint occurances of entity pairs and a total matrix was obtained by summing across individual matrices. This matrix constitutes the structure of the domain and was used as input to the next step. In addition, each participant was asked to rate the priority of each of the 100 entities on a 5-point scale ranging from least important (1) to most important (5). The form for these ratings is shown in Figure 31.

Representation of the Structured Domain (R). Essentially the same analysis was used as for the DCL study, that is, both multidimensional scaling and hierarchical cluster analysis. The final meeting involved approximately 45 UHS staff members (the agenda is shown in Figure 32) and was devoted to the interpretation and utilization of the results. Analysis of the results of the hierarchical cluster procedure led to the selection of twelve clusters. The entities listed by cluster are shown in Figure 33 followed by their identification number, the correlation between the entity and the cluster, and their mean priority rating. The concept map is shown in Figure 34. As before, the location of the point on the map was determined by the multidimensional scaling while the symbol for the point was determined by the cluster analysis. Figure 35 shows the same map but with each of the entities indicated by identification number.

A hand-drawn cluster map (Figure 36, which we sometimes refer to as the "golf course" map for obvious reasons) was used to indicate the approximate positions of the clusters. The group went through a process which led to a consensus on names for the clusters (as in DCL this involved first small group and then whole group discussion) which were then written on the cluster map. Following this, the group considered whether there were any sensible regions on the map. They agreed upon and named four general areas. The cluster names, region identifications, and region names are filled in on the cluster map shown in Figure 37. Curiously enough, the group was insistent on having one cluster (Cluster 5: Health Education) be simultaneously in two regions -- campus-community relations and client services -- a notion which the authors had not considered prior to that.

At this point the group was divided into small groups and given the task of generating specific recommendations for action (action statements) for different regions and clusters within regions (Figure 38). The discussion was very lively and a total of 145 action statements or recommendations were generated (Figure 39). These would then form the basis for consideration of actions on the part of the UHS planning committee.

Impressions. Our overall impression was that this study worked better than the DCL process which, although considered successful, had the notable flaws mentioned earlier. Specifically, in this example the set of entities was more homogeneous

in nature (probably due to the nature of the brainstorming instruction) and tended to reflect actions which might be taken or recommendations; the process was accomplished in a much shorter period of time and consequently there was less frustration and fatigue; and, the emphasis on action statements based on clusters and regions appeared to provide a sense of closure and accomplishment.

## CONCLUSIONS

Several general conclusions can be drawn concerning the use of structured conceptualization in the examples described above. First, working with relational data (e.g., concept maps) provides a framework conducive to a dynamic, moving process. The concept map reveals the data in its entirety, simultaneously showing individual entities, clusters of entities and both of these levels in relation to each other and the whole. Interpretation of this type of data allows for constant comparison of all levels of meanings. Second, the data retains its individuality and thereby allows each participant to maintain a personal connection to the meaning of the conceptualization. For example, individual participants can not only see the items which they generated, but they can also see them in relation to all other items -- participants can begin to see where they fit into the whole. Third, the conceptualization process is responsive to the participants. It

places power over the results primarily in the hands of those it affects. The brainstorming and sorting steps allow for equal input from all individuals. Researchers make relatively few subjective decisions throughout the process and have virtually no control over the product. Fourth, this is a goal free process. There are no predetermined hypotheses or structured instruments to delimit the questions being investigated prior to participant involvement, leaving the definition of such boundaries up to them. Fifth, this method of conceptualization combines a creative, opening, divergent way of thinking with a categorizing process; it explicitly expands and contracts its content. Lastly, structured conceptualization appears to have several important organizational side effects. Among these are 1) intensive interaction of staff around a common theme can have a unifying effect on the staff; 2) the activities engaged in as part of the process themselves promote creative thinking which simultaneously includes everyday job activities as well as the purposes and structure of the entire organization; 3) the sorting procedure appears to stimulate thoughts of underlying dimensions or criteria one may be unaware of using to establish ways of understanding the organization's function, structure and activities; 4) it creates a focus on process which can be ongoing or transferred to other areas of work; and, 5) it introduces a common language across staff categories.

Structured conceptualization processes as well as outcomes

can have important implications for both organizational planning and evaluation. The creative expanding nature of the processes may be especially appropriate to the needs of planning work. Involvement of all levels of staff also contributes to the expansion of the variety of perspectives as well as concrete suggestions for changes by those most clearly involved with the everyday functioning of the organization. The outcome or representation form, especially if it is pictorial, can provide a concrete framework based on specifics within which to explore various possible plans, problem resolutions or combinations of actions for the future. Recommendations can be generated which address specific areas of the concept map by region, cluster, or even individual entity. Comparisons can be made from area to area until a balance is reached or decisions are made regarding the need to concentrate on specific areas.

In the area of evaluation, structured conceptualization processes may be valuable for conducting internal organizational analysis, that is, to gather information about the current state of the organization from a variety of perspectives and including all aspects of its operation. They seem especially useful in revealing the informal side of the organization through its process. The outcome, the representation, can be a valuable delineation of the issues, both procedural and substantive. It can be used as a framework for decision making about areas and appropriate techniques to be used for further formative and/or

summative evaluation of the organization. Individual entities or clusters of entities can be adapted for use in constructing questions for surveys. In cases where entities show similarity by appearing not only close to each other but also in certain patterns (e.g., simplex, circumplex) subscales may be constructed directly with little or no additional preparation. Identical conceptualization processes could be carried out among several groups or subgroups and maps could be compared for their similarity or differences. If restricted to a common set of entities, one can even conceive of using the conceptualization as a data collection strategy in a pre-post or multiple group quasi-experimental research design. Essentially this approach would involve looking for changes or differences in patterns rather than in univariate or multivariate indicators. While much of the potential of structured conceptualization in these areas has yet to be empirically explored, it is clear from the examples which were discussed that such processes can have some value within the contexts of evaluation and planning and that this exploration needs to go forward.

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Figure 1

Conceptualization Processes

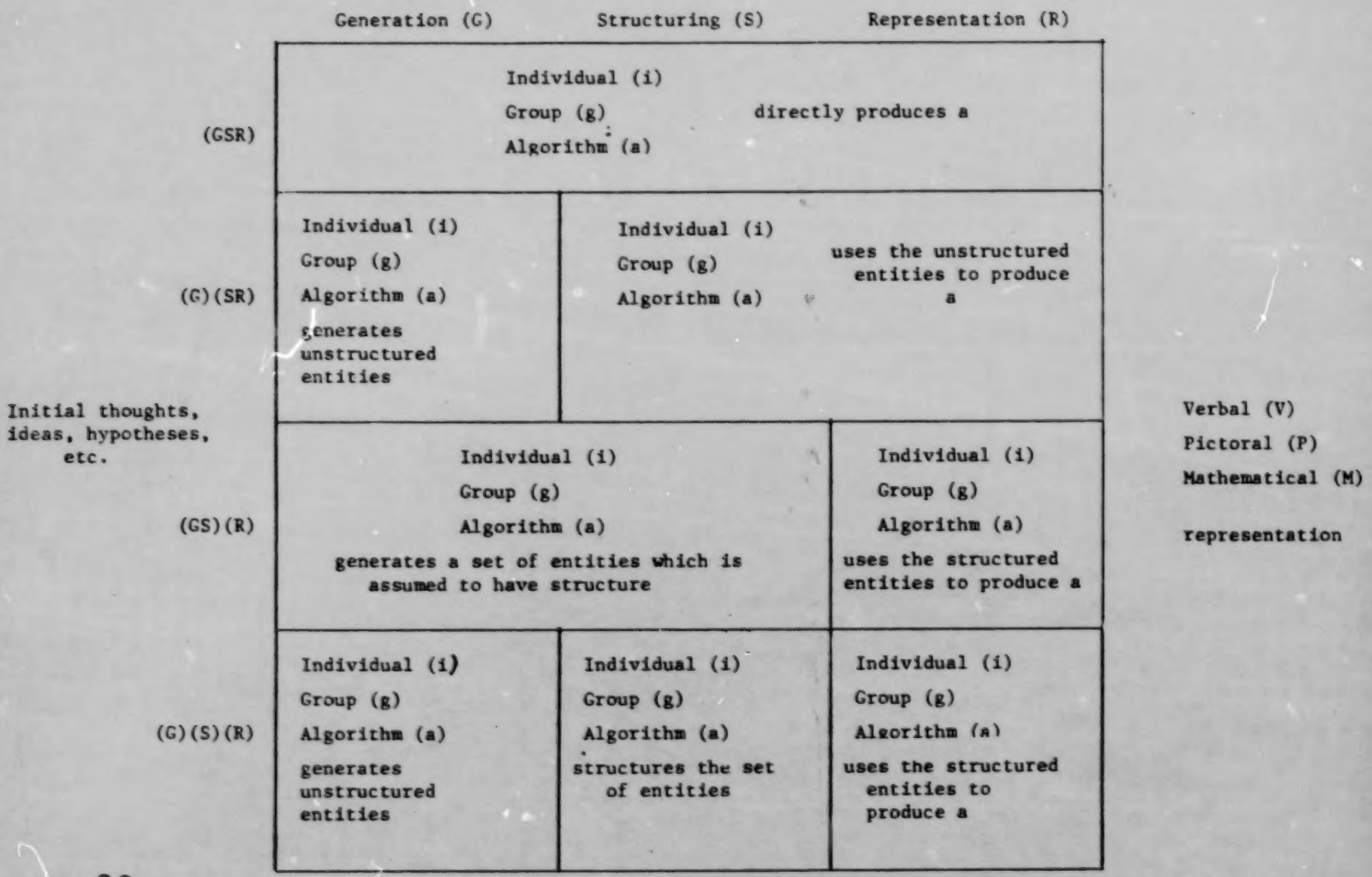

Figure 2

DIVISION OF CAMPUS LIFE
LONG RANGE PLANNING EFFORT
(BRAINSTORMING SESSION)

December 16, 1983

PROCEDURES

Introduction.....10:00 - 10:15

Individual Brainstorming.....10:15 - 10:25

Formation of Small Groups.....10:25 - 10:30

First Brainstorming Session.....10:30 - 10:50

Break.....10:50 - 11:00

Formation of Small Groups.....11:00 - 11:05

Second Brainstorming Session.....11:05 - 11:25

Formation of Small Groups.....11:25 - 11:30

Third Brainstorming Session.....11:30 - 11:50

Wrap-Up.....11:50 - 12:00

Figure 3

DIVISION OF CAMPUS LIFE
LONG RANGE PLANNING EFFORT
(BRAINSTORMING SESSION)

December 16, 1983

THE MISSION OF THE DIVISION OF CAMPUS LIFE

IS TO IMPROVE THE

QUALITY OF LIFE ON CAMPUS

BY

DEVELOPMENT AND MAINTENANCE OF AN ENVIRONMENT

THAT PROVIDES AN OPPORTUNITY FOR

CREATIVE INTERACTION AMONG ALL MEMBERS OF THE CORNELL COMMUNITY

Figure 4

DIVISION OF CAMPUS LIFE
LONGE RANGE PLANNING EFFORT
(BRAINSTORMING SESSION)

December 16, 1983

## BRAINSTORMING INSTRUCTION SHEET

### Basic Rules of Brainstorming

1. Generate as many ideas as possible.
2. Think braodly - all ideas are acceptable.
3. Build upon or modify ideas of others.
4. No criticisms or value judgements (positive or negative) are permitted.

### Group Scribe Instructions

1. The group scribe is in charge of recording all items offered in the group sessions. Individuals may choose to offer items from their individual sheets or generate new ones in the group session.
2. Use as many sheets of paper as necessary.
3. At the end of the session, give the full list of items to a designated staff member.

### Brainstorming Prompts

If you get stuck while brainstorming, you might try taking any of the items already listed and think of a new item which

- is similar to the item
- is opposite to the item
- describes a subclass of the item
- describes a broader class which the item is a member of
- gives an example of the item
- defines the item
- uses the item in a sentence
- free associates to the item

Figure 5

Department You Represent: _____

DIVISION OF CAMPUS LIFE
LONG RANGE PLANNING EFFORT
(BRAINSTORMING SESSION)

December 16, 1983

INDIVIDUAL BRAINSTORMING SHEET

(Write words, phrases or sentences in each column)

| Quality of life on campus | Development and maintenance of an environment | Creative interaction among all members of the Cornell Community |
|---|---|---|
| | | |

Figure 6

DCL Study - Final Entity Set

( 1) diversity of programs, services, activities, people
( 2) goals and objectives clearly stated
( 3) more human relations workshops
( 4) security, safety
( 5) objective evaluation of programs, services, goals
( 6) more access board of trustees
( 7) intellectual stimulation
( 8) supportive challenge vs competition
( 9) increased knowledge of university resources and locations
( 10) tolerance for differences
( 11) interdisciplinary approach to problems, program development
( 12) opportunities for closure -- completeness, positive feedback, evaluation
( 13) dedicated students, staff, faculty
( 14) continued analysis for planning
( 15) financial support for innovative creative interaction
( 16) enthusiastic leadership
( 17) demands of adult development
( 18) listening skills
( 19) commitment to goals and follow through
( 20) recognizing need for change ( faculty, staff, students )
( 21) academic: tutoring, centralization / decentralization, variety of situations / experiences, intern / field work, international / study abroad
( 22) open and democratic decision making
( 23) recognition
( 24) living / learning environment -- opportunities, support, residential colleges
( 25) relationship between academic life and overall quality of life
( 26) human needs: creative, caring, honest, tolerant, flexible, sensitive, considerate
( 27) cultural activities: concerts, plays, news / periodicals, roundtables / forums,artistic / plastic
( 28) friendships -- fun
( 29) size ( number of students, staff, cars, paper )
( 30) facilitate exchange of ideas and staff values, ideas, opinions, things, etc.
( 31) identity ( individual and group )
( 32) technologically current state of the art
( 33) top down / bottom up interaction
( 34) facilities
( 35) consistency
( 36) student interns
( 37) sense of structure
( 38) beauty / aesthetics
( 39) guidance with students emotional / mental problems
( 40) social and recreational opportunities
( 41) identify, promote and maintain what works well
( 42) people get freed from ' everyday ' roles to think

Figure 6 (continued)

.DCL Study - Final Entity Set

differently than usual
( 43) experimentation
( 44) more residence halls
( 45) must have clarity of goal for interaction to produce creativity
( 46) free expression
( 47) promote accountability and responsibility
( 48) goal conflict can inhibit communication and creativity
( 49) responsibility
( 50) maintain environment conducive to personal growth and development
( 51) ethnic foods
( 52) self discovery
( 53) reduction of stress
( 54) faculty in residence
( 55) freedom of movement
( 56) who defines what is needed / evaluates?
( 57) CU support experimental community arts
( 58) athletics
( 59) humanized technology
( 60) actively encourage input from subordinates
( 61) outreach(ing)
( 62) simplicity and directness of language
( 63) creativity in use of geographic area
( 64) productiveness
( 65) concern for the individual
( 66) promote use of environment beyond classroom
( 67) career development
( 68) grievance procedures ( all complaints )
( 69) eliminate deadlines when possible; minimize unreasonable deadlines; balance time pressures
( 70) self governance
( 71) integration of on campus and off campus community
( 72) planning which involves those who are affected
( 73) sense of humor
( 74) incorporation of adverse opinions
( 75) reward initiative and efficiency
( 76) time for reflection
( 77) continual review of facilities and programs; maintain and productive
( 78) discussion of quality of life
( 79) sharing
( 80) recognize we all contribute to education
( 81) time for development of system: planning, evaluation system
( 82) study
( 83) strategy to link lofty concepts to what we do day to day
( 84) creative use of communication devices and technology
( 85) active moral commitments
( 86) encourage interdependency among departments / too much separation

Figure 6 (continued)

DCL Study - Final Entity Set

( 87) formulation of inter-divisional committees
( 88) involvement
( 89) improve ' environment ' for staff
( 90) means of converting ideas into action
( 91) valuing
( 92) encourage small group activities
( 93) no empire building
( 94) life-long learning
( 95) improved parking
( 96) sufficient and adequate space for facilities
( 97) spirituality
( 98) actively promote the good citizen / C. U.
( 99) scholarly discussion of moral and ethical issues
( 100) sense of worth
( 101) master plan for construction, maintenance, services
( 102) common learning core curriculum for the campus community
( 103) affirmation
( 104) determine what are the ' real needs ' of students and work toward meeting them
( 105) collaborative problem solving
( 106) address alcoholism, drug abuse -- isms ( diseases of society )
( 107) develop governance / judicial system which reflects ' real world '
( 108) intentional interactions, i.e. roundtable discussions of issues
( 109) preventive health care program
( 110) creative development and use of money
( 111) respect for confidentiality
( 112) employment / volunteerism
( 113) ecology -- relationships: academic, social / moral, recreational
( 114) create quality circle
( 115) tolerance for ambiguity
( 116) long range vision
( 117) encourage teaching by non-faculty
( 118) transportation
( 119) role models for diverse populations
( 120) create real roles for student government
( 121) absence of loneliness
( 122) style / lightness of touch
( 123) more integrated use of dining facilities
( 124) sense of participation and control
( 125) commitment to excellence -- facilities, programs, people
( 126) considerate behavior -- courteous, non-exploitive
( 127) broad range / diversity of choice -- academics and services
( 128) understanding and appreciation of different values, mores, customs
( 129) institutional commitment to: faculty, students, staff

Figure 6 (continued)

.DCL Study - Final Entity Set

( 130) development of life coping skills -- shopping, budgeting, decision-making
( 131) reduction of environmental health hazards
( 132) empathy
( 133) honesty, openness
( 134) promote sense of community
( 135) network development
( 136) nurture service orientation
( 137) permission to fail

Figure 7

Division of Campus Life

Sort Instructions
Part I

January 30, 1984

Instructions: You will be given a stack of index cards each of which has a single statement on it. The statements are all from the list which you generated at the brainstorming session on December 16. What we would like you to do is to sort these statements into groups or piles in a way that makes sense to you. You may have as many piles as you feel you need as long as you don't put all items into one pile or all items by themselves. We suggest that you look the cards over briefly to get a sense of the types of items which are included and then begin to group them. Feel free to move items around and change your categories until you feel comfortable with the groups you have created. There is no single sort which is "correct" -- we expect different people will use different criteria. When you are satisfied with the piles, please order the cards within each pile from lowest to highest according to the number at the end of each statement.

When you have finished the ordering, please fill out the table on the following page. In the first column simply write down a pile or group number. If you finished with four piles, for instance, you should record the numbers 1 through 4 down the first column. To the right of each pile number, list the number(s) of each card sorted into that pile (i.e. the number at the end of each statement on each card). Please separate each number with a comma. Also, please write legibly -- the analysts must be able to distinguish between 1's and 7's, 3's and 5's, etc.

Example

(These are fictitious card numbers used only for this example.)

| PILE NUMBER | STATEMENTS SORTED INTO THAT PILE |
|---|---|
| 1 | 139, 160, 172, 186, 193, 215, 223, 237, 256, 277, 294, 306, 321, 357 |
| 2 | 152, 178, 184, 192, 217, 255, 261, 299, 300, 314 |

When you have completed this sorting task, there will be another instruction sheet describing the final task.

Figure 8

Division of Campus Life

Sort Instructions
Part I

January 30, 1984

| PILE NUMBER | STATEMENTS SORTED INTO THAT PILE |
|---|---|

Figure 9

Division of Campus Life

Sort Instructions
Part II

January 30, 1984

Instructions: We would like you to think about each of the groups which you created and try to come up with a short name or description which will characterize the group. As on the previous page, please record the pile number in the left-hand column. To the right of each pile, write in the name or short description.

| PILE NUMBER | NAME OR SHORT DESCRIPTION |
|---|---|

Figure 10

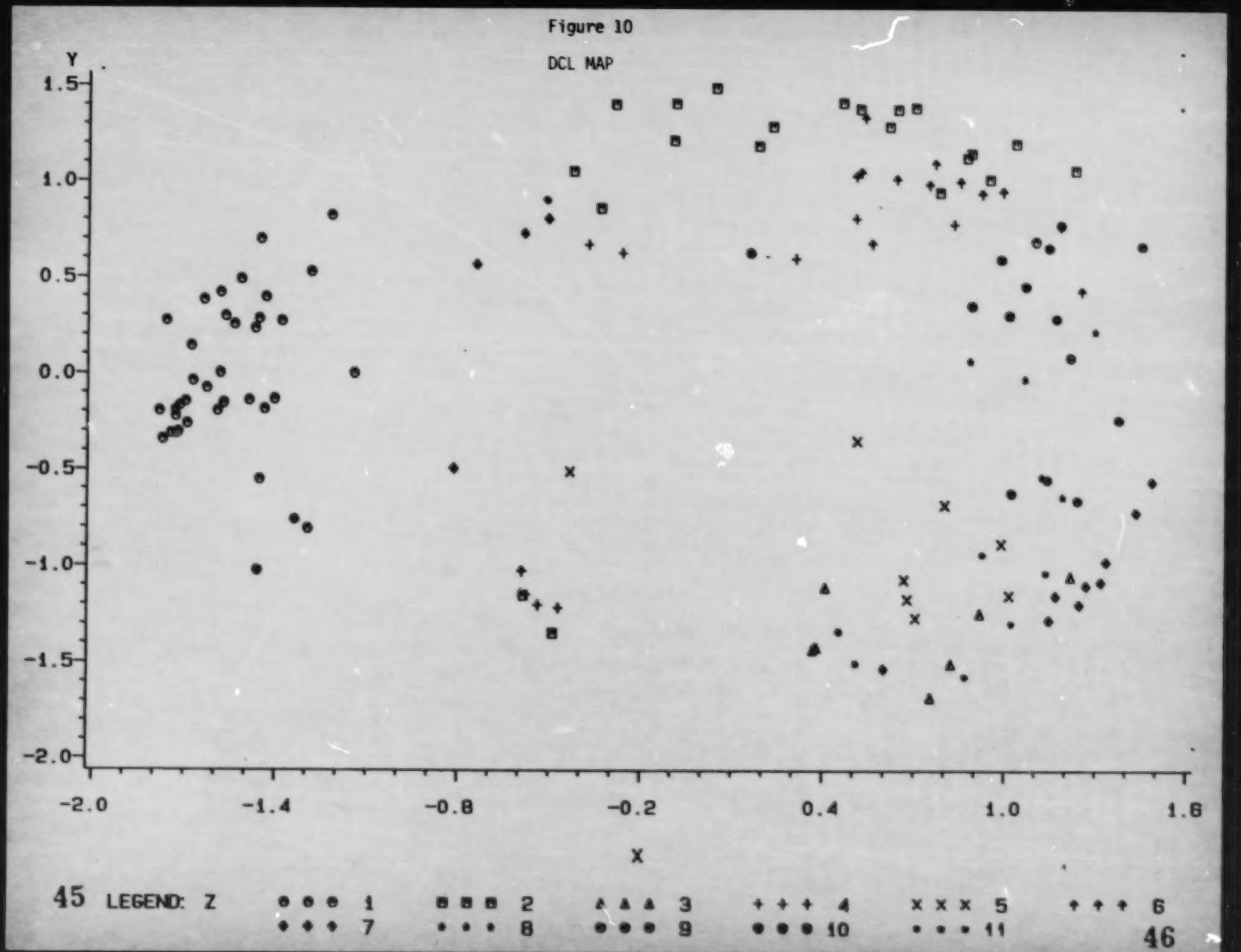
DCL MAP
Y
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
-2.0
-1.4
-0.8
-0.2
0.4
1.0
1.6
X
45
LEGEND: Z
1
2
3
4
5
6
7
8
9
10
11
46

Figure 11

**Division of Campus Life**
**Conceptualization Study**

**Agenda**

I. Introduction (5 min)

II. Cluster Naming

- a. individual process (10 min)
- b. small group process (10 min)
- c. whole group process (30 min)

III. Cluster Hierarchy

- a. presentation of cluster tree (5 min)
- b. revisions to cluster names (10 min)

IV. Conceptual Map

- a. presentation of map (10 min)
- b. revisions to cluster names (10 min)

V. Discussion of Conceptualization

- a. interpretation (15 min)
- b. possible applications (15 min)

Figure 12

DCL Cluster 1

empathy (132) (.97)
considerate behavior -- courteous, non-exploitive (126) (.95)
sense of worth (100) (.95)
absence of loneliness (121) (.94)
self discovery (52) (.94)
honesty, openness (133) (.93)
style / lightness of touch (122) (.93)
spirituality (97) (.93)
sense of humor (73) (.93)
valuing (91) (.92)
friendships -- fun (28) (.92)
sharing (79) (.91)
free expression (46) (.91)
tolerance for differences (10) (.91)
involvement (88) (.89)
human needs: creative, caring, honest, tolerant, flexible, sensitive, considerate (26) (.89)
permission to fail (137) (.88)
affirmation (103) (.88)
listening skills (18) (.88)
tolerance for ambiguity (115) (.83)
time for reflection (76) (.81)
recognition (23) (.81)
responsibility (49) (.8)
active moral commitments (85) (.79)
concern for the individual (65) (.79)
understanding and appreciation of different values, mores, customs (128) (.74)
respect for confidentiality (111) (.73)
productiveness (64) (.72)
identity ( individual and group ) (31) (.72)
consistency (35) (.71)
freedom of movement (55) (.7)
beauty / aesthetics (38) (.69)
study (82) (.64)
outreach(ing) (61) (.61)
reduction of stress (53) (.61)
experimentation (43) (.61)
commitment to excellence -- facilities, programs, people (125) (.32)

Figure 12 (continued)

DCL Cluster 2

identify, promote and maintain what works well (41) (.88)
planning which involves those who are affected (72) (.87)
must have clarity of goal for interaction to produce creativity (45) (.87)
objective evaluation of programs, services, goals (5) (.87)
means of converting ideas into action (90) (.82)
strategy to link lofty concepts to what we do day to day (83) (.8)
goals and objectives clearly stated (2) (.76)
commitment to goals and follow through (19) (.75)
who defines what is needed / evaluates? (56) (.73)
long range vision (116) (.72)
continued analysis for planning (14) (.72)
opportunities for closure -- completeness, positive feedback, evaluation (12) (.72)
promote accountability and responsibility (47) (.7)
goal conflict can inhibit communication and creativity (48) (.68)
open and democratic decision making (22) (.66)
incorporation of adverse opinions (74) (.52)
enthusiastic leadership (16) (.33)
development of life coping skills -- shopping, budgeting, decision-making (130) (.31)
sense of structure (37) (.25)
ecology -- relationships: academic, social / moral, recreational (113) (.21)
people get freed from ' everyday ' roles to think differently than usual (42) (.2)

Figure 12 (continued)

DCL Cluster 3

address alcoholism, drug abuse -- isms ( diseases of society ) (106) (.88)
cultural activities: concerts, plays, news / periodicals, roundtables / forums, artistic / plastic (27) (.85)
preventive health care program (109) (.82)
ethnic foods (51) (.81)
guidance with students emotional / mental problems (39) (.81)
social and recreational opportunities (40) (.79)
CU support experimental community arts (57) (.73)
more human relations workshops (3) (.73)

Figure 12 (continued)

DCL Cluster 4

institutional commitment to: faculty, students, staff (129) (.77)
recognize we all contribute to education (80) (.51)
recognizing need for change ( faculty, staff, students ) (20) (.51)
dedicated students, staff, faculty (13) (.39)
security, safety (4) (.38)
promote sense of community (134) (.34)
supportive challenge vs competition (8) (.17)
scholarly discussion of moral and ethical issues (99) (.06)

Figure 12 (continued)

DCL Cluster 5

common learning core curriculum for the campus community (102) (.71)
relationship between academic life and overall quality of life (25) (.7)
promote use of environment beyond classroom (66) (.64)
encourage teaching by non-faculty (117) (.63)
broad range / diversity of choice -- academics and services (127) (.43)
diversity of programs, services, activities, people (1) (.39)
discussion of quality of life (78) (.3)
humanized technology (59) (.09)

Figure 12 (continued)

DCL Cluster 6

top down / bottom up interaction (33) (.84)
collaborative problem solving (105) (.82)
no empire building (93) (.82)
eliminate deadlines when possible; minimize unreasonable deadlines; balance time pressures (69) (.81)
time for development of system: planning, evaluation system (81) (.77)
actively encourage input from subordinates (60) (.77)
formulation of inter-divisional committees (87) (.73)
reward initiative and efficiency (75) (.73)
create quality circle (114) (.7)
facilitate exchange of ideas and staff values, ideas, opinions, things, etc. (30) (.67)
interdisciplinary approach to problems, program development (11) (.67)
intentional interactions, i.e. roundtable discussions of issues (108) (.35)
demands of adult development (17) (.14)

Figure 12 (continued)

DCL Cluster 7

improved parking (95) (.96)
transportation (118) (.95)
facilities (34) (.92)
sufficient and adequate space for facilities (96) (.91)
more integrated use of dining facilities (123) (.9)
master plan for construction, maintenance, services (101) (.89)
more residence halls (44) (.87)
reduction of environmental health hazards (131) (.86)
athletics (58) (.81)
role models for diverse populations (119) (.21)
self governance (70) (.18)
actively promote the good citizen / C. U. (98) (.17)
maintain environment conducive to personal growth and development (50) (.16)

Figure 12 (continued)

DCL Cluster 8

create real roles for student government (120) (.77)
develop governance / judicial system which reflects '
real world ' (107) (.71)
more access board of trustees (6) (.67)
encourage small group activities (92) (.66)
grievance procedures ( all complaints ) (68) (.55)

Figure 12 (continued)

DCL Cluster 9

size ( number of students, staff, cars, paper ) (29) (.75)
continual review of facilities and programs; maintain
and productive (77) (.72)
creativity in use of geographic area (63) (.72)
life-long learning (94) (.56)
technologically current state of the art (32) (.52)
employment / volunteerism (112) (.48)
improve ' environment ' for staff (89) (.44)

Figure 12 (continued)

DCL Cluster 10

encourage interdependency among departments / too much separation (86) (.75)
financial support for innovative creative interaction (15) (.75)
network development (135) (.71)
creative development and use of money (110) (.68)
increased knowledge of university resources and locations (9) (.61)
creative use of communication devices and technology (84) (.59)
intellectual stimulation (7) (.58)
determine what are the ' real needs ' of students and work toward meeting them (104) (.37)
nurture service orientation (136) (.29)

Figure 12 (continued)

DCL Cluster 11

faculty in residence (54) (.85)
academic: tutoring, centralization / decentralization, variety of situations / experiences, intern / field work, international / study abroad (21) (.75)
student interns (36) (.72)
living / learning environment -- opportunities, support, residential colleges (24) (.62)
sense of participation and control (124) (.53)
integration of on campus and off campus community (71) (.53)
simplicity and directness of language (62) (.41)
career development (67) (.29)

Figure 13

**Division of Campus Life**
**Conceptualization Study**

**Cluster Names**

| Cluster | Name |
|---|---|
| 1 | _____ |
| 2 | _____ |
| 3 | _____ |
| 4 | _____ |
| 5 | _____ |
| 6 | _____ |
| 7 | _____ |
| 8 | _____ |
| 9 | _____ |
| 10 | _____ |
| 11 | _____ |

Figure 14

DCL Conceptualization Study

Cluster Tree

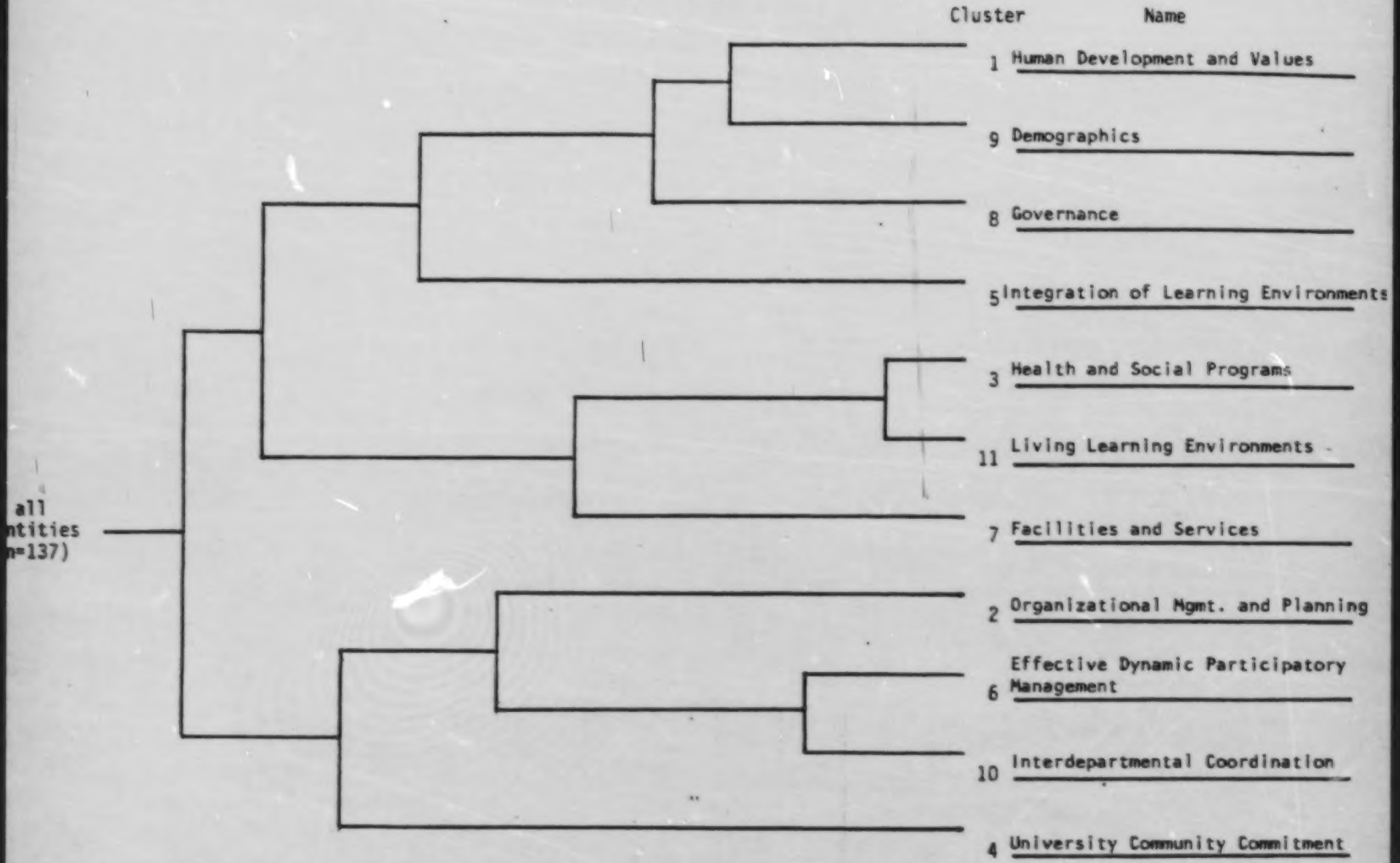

Figure 15

DCL MAP

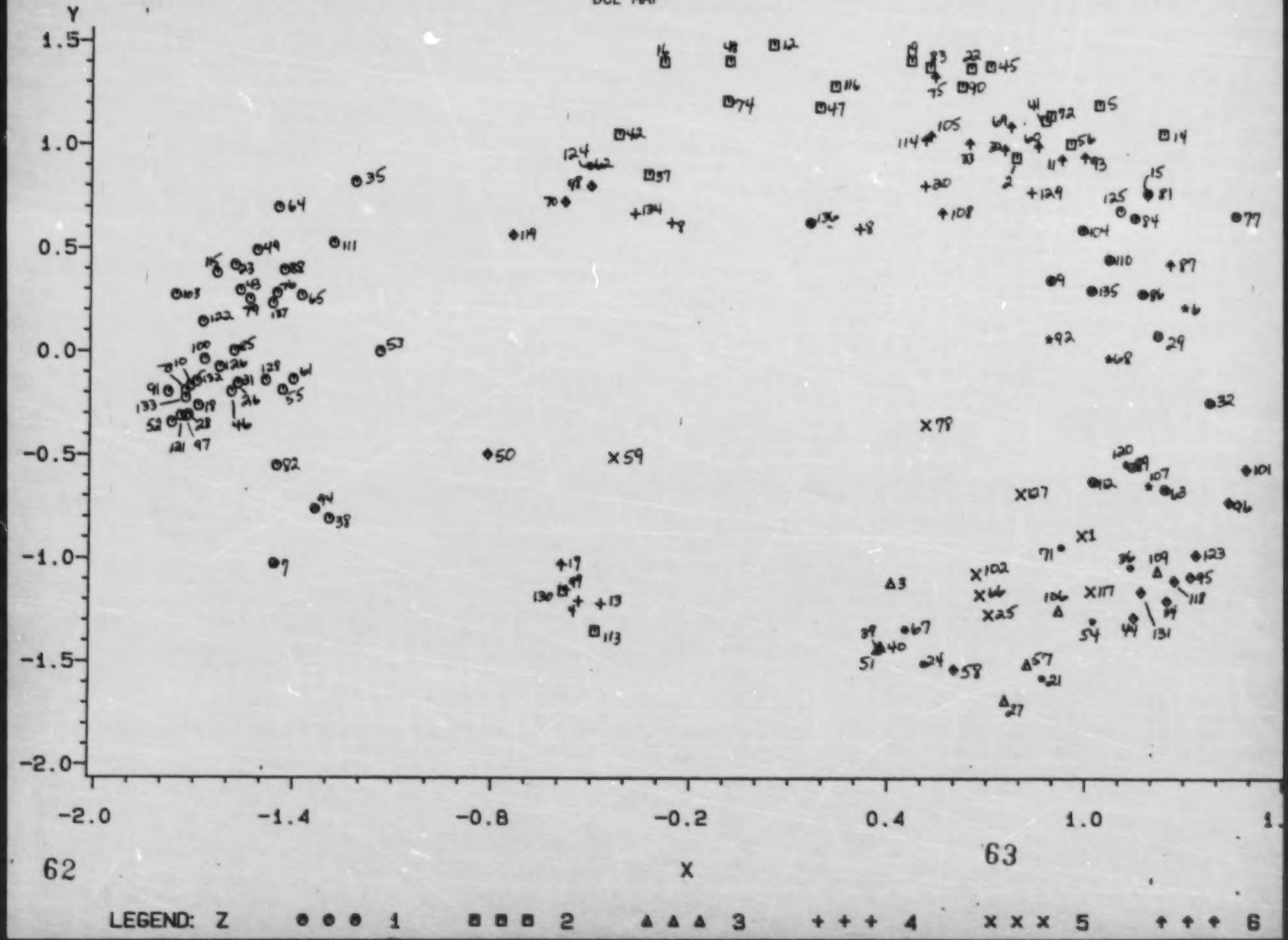

Figure 16

Division of Campus Life
Conceptualization Study

AGENDA

I. Naming Regions on the Map (15 min.)

II. Group Consensus on Region and Cluster Names (15 min.)

III. General Interpretation of the Concept Map (25 min.)

(BREAK)

IV. Some Additional Interpretations (15 min.)

a. The "Concept Triangle"

b. The "Concept Matrix"

V. Uses of the Conceptualization (40 min.)

a. Report Outlines

b. Departmental Planning Processes

VI. Activities for Next Meeting (5 min.)

Figure 17

DCL CLUSTER MAP

(cluster locations approximate)

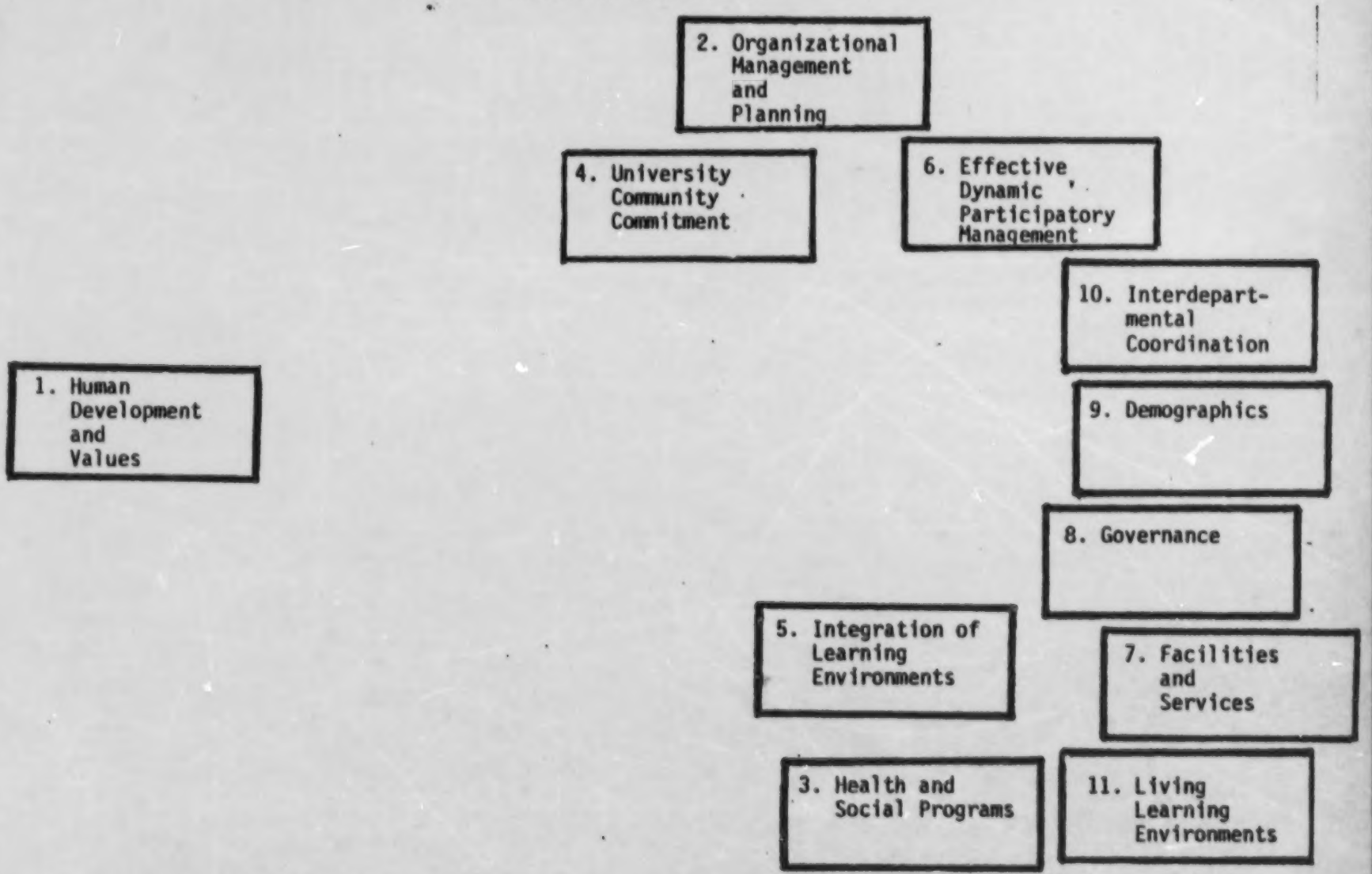
2. Organizational Management and Planning
4. University Community Commitment
6. Effective Dynamic Participatory Management
10. Interdepart-mental Coordination
1. Human Development and Values
9. Demographics
8. Governance
5. Integration of Learning Environments
7. Facilities and Services
3. Health and Social Programs
11. Living Learning Environments

Figure 18

Division of Campus Life
Conceptualization Study

Naming Regions on the Concept Map

The purpose of this exercise is to develop an understanding of the concept map. To do this, you first need to link the concept tree with the concept map. You have been provided with both the map (with circles indicating the approximate locations of the clusters) and the tree, with the cluster names typed on them. The first thing you need to do is to examine the tree. Notice that all of the eleven clusters started from a single base. The cluster analysis begins by splitting this base into two major branches, then splits one of these branches into two, and so on. Begin by looking at the first split. Clusters 2, 6, 10 and 4 are on the bottom branch while all others are on the top one. Now, on the concept map, draw a line which differentiates these two branches (i.e., a line which separates Clusters 2, 6, 10 and 4 from all others). Presumably, the cluster analysis split these two sets of clusters because there is more similarity within each set than between them. Next, the cluster program split the first branch into two, with Clusters 3, 11 and 7 in one set and Clusters 1, 9, 8 and 5 in the other. Again, draw a line on the concept map which represents this split. Finally, notice that Cluster 1 stands apart from the other clusters in its set (Clusters 9, 8 and 5). Although the cluster analysis put these together, the map clearly indicates that they are distinct in some way. Draw a line on the concept map which separates Cluster 1 from the others in its set.

We could obviously continue dividing up the map using the information provided by the tree until we obtained the eleven distinct clusters. However, it is advantageous to look at the map in terms of both individual clusters and larger regions when trying to interpret it. The next step is for you to name each of the four regions on the map. To develop a name for any region, examine the names of the clusters in that region and try to pick a word or short phrase which summarizes them. When you have done this (or if you have difficulty in doing this) you should refer back to the original entities for each cluster to see whether the region name makes sense.

When each person in your small group has accomplished this, you should discuss the region names until you have consensus on these names for your group. You might also want to discuss the original cluster names to see whether they need revision in order to be more consistent with the regions and the structure of the tree. We will then discuss the region names from each small group and reach a large group consensus on them. In addition, we will entertain any suggestions for revision of cluster names.

Figure 19

Division of Campus Life
Conceptualization Study

Interpreting the Concept Map

At this point, the formal conceptualization task is complete and we can begin the job of interpreting the conceptualization and determining how it can be used in the Divisional planning process. First, we will examine the concept map itself. Each small group should discuss the map, considering the following questions:

- o What is this a conceptualization of?
- o Are there some regions or clusters which are more important than others?
- o Are there major topics of relevance to the Division or your department which could not be located sensibly somewhere on this map?
- o Do the issues in some regions or clusters have to be addressed before issues elsewhere can be?
- o Are there certain regions or clusters which constitute strengths of the Division or your department?
- o Are there certain regions or clusters which constitute weaknesses of the Division or your department?
- o Are there certain regions or clusters which act as links between other regions or clusters?
- o What, if anything, does the concept map imply about goals of the Division and of your department?
- o What, if anything, does the concept map imply about planning in the Division or for your department?

Figure 20

DCL CONCEPT MATRIX

| | VALUES | ISSUES | OBJECTIVES AND ACTIVITIES |
|---|---|---|---|
| PROCESS | (PROCESS VALUES)<br><br>1. Human Development and Values | 2. Organizational Management and Planning<br>4. University Community Commitment | 3. Effective Dynamic Participatory Management<br>10. Interdepartmental Coordination<br>9. Demographics |
| OUTCOME | (OUTCOME VALUES) | 5. Integration of Learning Environments<br>3. Health and Social Programs | 8. Governance<br>7. Facilities and Services<br>11. Living Learning Environments |

Figure 21

DCL CONCEPT TRIANGLE

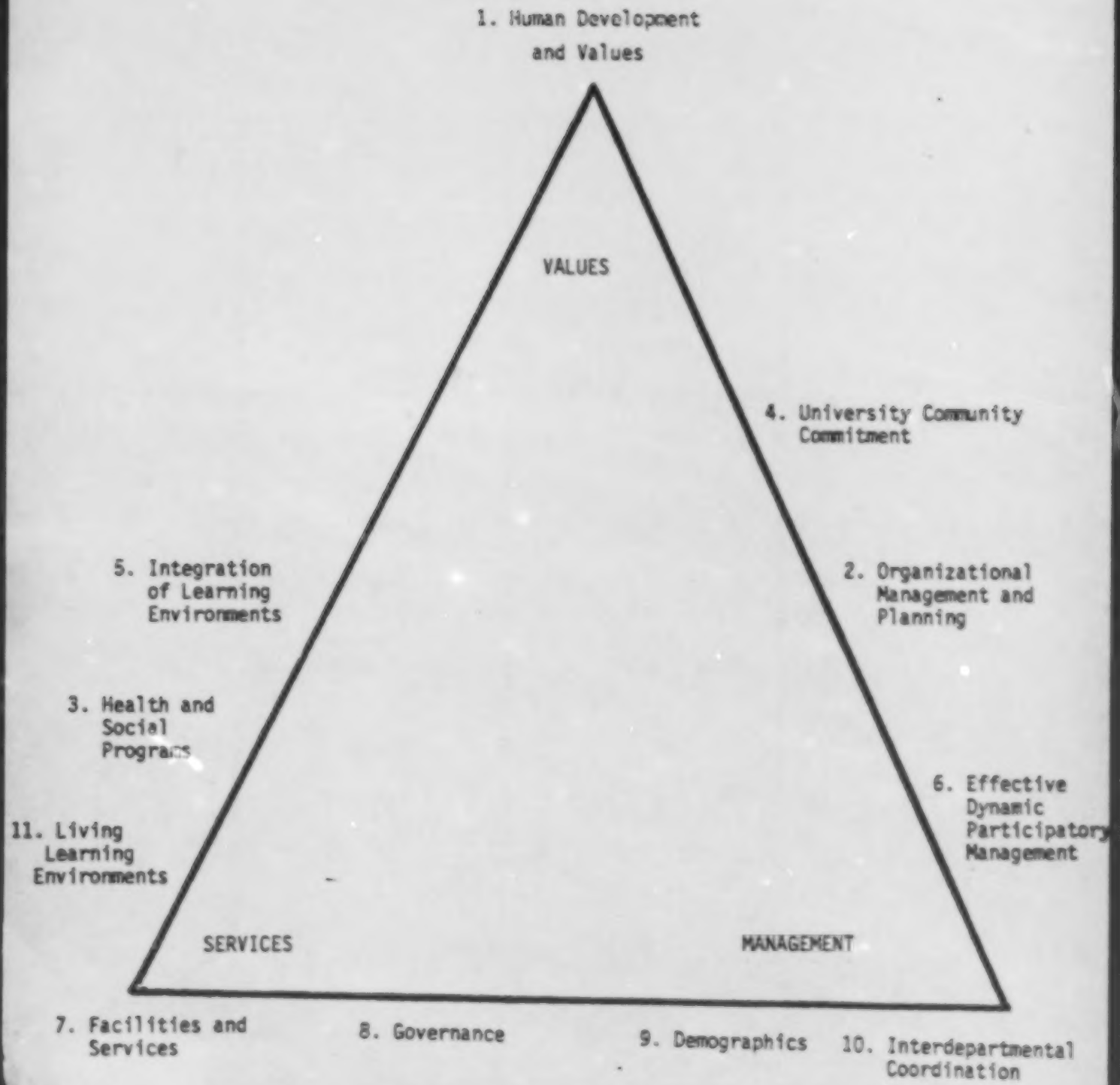

Figure 22

Division of Campus Life
Conceptualization Study

Sample Outline I*

I. _____ (Region 1 Name)

II. _____ (Region 2 Name)

A. Organizational Management and Planning (2)

B. University Community Commitment (4)

C. Effective Dynamic Participatory Management (6)

D. Interdepartmental Coordination (10)

III. _____ (Region 3 Name)

A. Demographics (9)

B. Governance (8)

C. Integration of Learning Environments (5)

IV. _____ (Region 4 Name)

A. Facilities and Services (7)

B. Health and Social Programs (3)

C. Living Learning Environments (11)

* based on Concept Map

Figure 23

Division of Campus Life
Conceptualization Study

Sample Outline II*

I. Values

A. Human Development and Values - Process Values (1)

B. Human Development and Values - Outcome Values (1)

II. Issues

A. Process Issues

1. Organizational Management and Planning (2)

2. University Community Commitment (4)

B. Outcome Issues

1. Integration of Learning Environments (5)

2. Health and Social Programs (3)

III. Objectives and Activities

A. Process Objectives and Activities

1. Effective Dynamic Participatory Management (6)

2. Interdepartmental Coordination (10)

3. Demographics (9)

B. Outcome Objectives and Activities

1. Governance (8)

2. Facilities and Services (7)

3. Living Learning Environments (11)

* based on Concept Matrix

Figure 24

Division of Campus Life
Conceptualization Study

Sample Outline III*

I. Process

A. Process Values - Human Development and Values (1)

B. Process Issues

1. Organizational Management and Planning (2)

2. University Community Commitment (4)

C. Process Objectives and Activities

1. Effective Dynamic Participatory Management (6)

2. Interdepartmental Coordination (10)

3. Demographics (9)

II. Outcome

A. Outcome Values - Human Development and Values (1)

B. Outcome Issues

1. Integration of Learning Environments (5)

2. Health and Social Programs (3)

C. Outcome Objectives and Activities

1. Governance (8)

2. Facilities and Services (7)

3. Living Learning Environments (11)

* based on Concept Matrix

Figure 25

Division of Campus Life
Conceptualization Study

Departmental Interpretation of Concept Map

In order for you to take advantage of the concept map within your own department, you have to become fluent at moving from the map to the individual brainstormed items. To begin, each small group should select a region and a cluster within that region to concentrate on. Consider your department - it's goals, activities, issues. What does the region mean for your department? How important is the region to your department? How important is the cluster which you're considering?

Now examine the complete set of brainstormed items for that cluster. Are there any items which you would add to this list in order to make it more appropriate for your department? Consider each item in turn and discuss the following questions:

- Is the item relevant to your department?
- What specific activities do you have which address this item?
- If the item implies some goal, what specific actions might you take to address this goal.
- If the item implies some action, what would the consequences be of taking such action?
- If you address the item in some way in your department, would your actions have any effect on issues implied by other regions or clusters?
- If you address the item, would your actions be related to what is going on in other departments or the Division as a whole?

You should certainly feel free to add any other questions to this list which occur to you. Then repeat this process with a different cluster selected from a different region. Is this procedure useful as a basis for a structured discussion within your department?

Figure 26

UNIVERSITY HEALTH SERVICES

Long Range Planning Effort

Timeline for Conceptualization Process

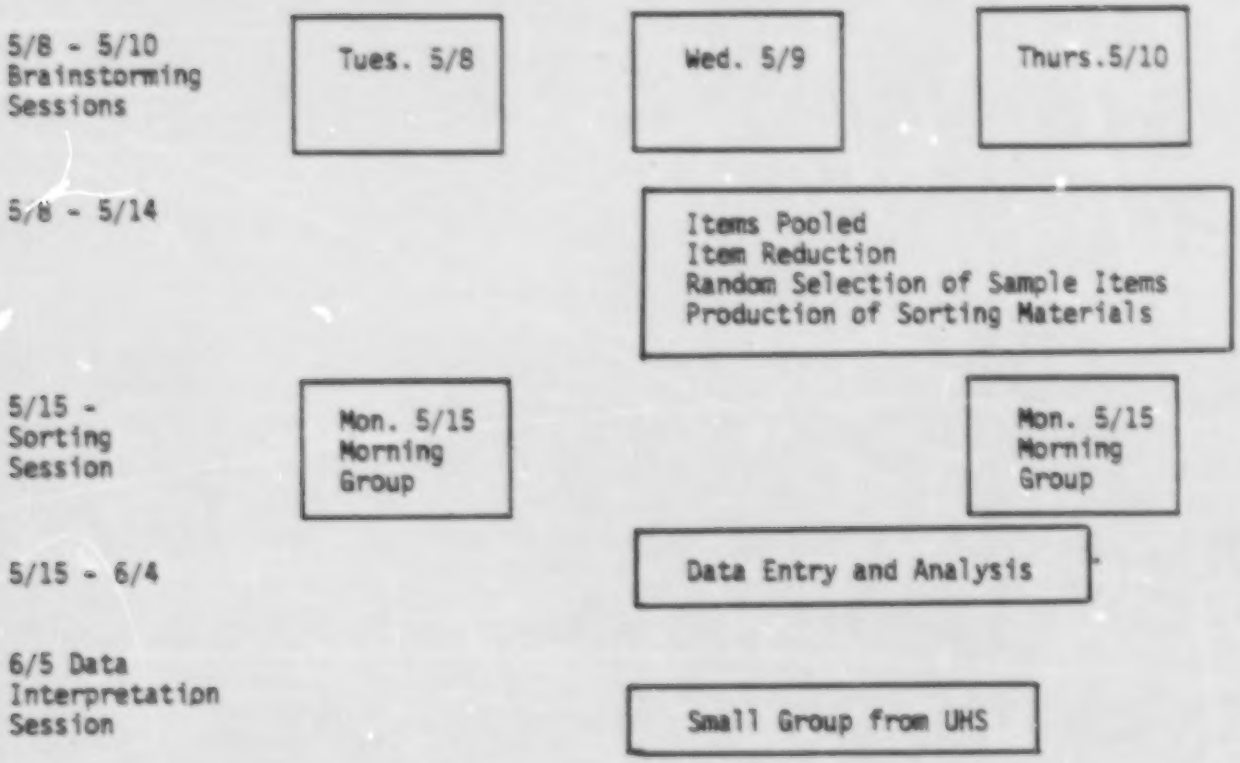

Figure 27

UNIVERSITY HEALTH SERVICES
LONG RANGE PLANNING EFFORT
(BRAINSTORMING SESSION)

May 8, 1984

## BRAINSTORMING SHEET

### Brainstorming Instruction

Generate statements (phrases or sentences) which describe your view of what University Health Services should be or should do. There are no correct or incorrect, good or bad ideas; all statements are good and valuable.

### Basic Rules of Brainstorming

1. Generate as many ideas as possible.
2. Think broadly - all ideas are acceptable.
3. Build upon or modify ideas of others.
4. No criticisms or value judgments (positive or negative) are permitted.

### Group Scribe Instructions

1. The group scribe is in charge of recording all items offered in the group sessions. Individuals may choose to offer items from individual sheets or generate new ones in the group session.
2. Use as many sheets of paper as necessary.
3. At the end of the session, give the full list of items to a designated staff member.

Figure 28

A. Statement on departmental mission goals

1. Mission of the University Health Services (UHS):

"To provide the highest quality medical care in the most comprehensive and accessible fashion and to maintain the health of the student body, enabling students to achieve their educational goals; and to provide appropriate medical services to members of the Cornell community."

2. The Goals of the UHS are:

a. The diagnosis and treatment of illness, both physical and emotional amongst students, with minimum time lost from their academic work.

b. The prevention of acute and chronic physical and mental disorders whenever possible.

c. The development of an intelligent and realistic attitude toward health on the part of every student.

d. Incremental expansion of the provision of medical services to members of the Cornell community.

Figure 29

University Health Services Conceptualization

( 1) UHS should be supportive to staff
( 2) better time management
( 3) Drug and Alcohol abuse counselor
( 4) healthcare for staff and family
( 5) improve the public image of UHS
( 6) provide high quality health care to students and staff
( 7) expand in health education efforts
( 8) expand services for faculty, staff, and family in a bigger building
( 9) increase cont. med. ed for nurses
( 10) promote increased educational opportunities for staff
( 11) more acknowledgement of staff accomplishments; more positive feedback
( 12) discourage non-emergency visits to clinic during non-appointment hours
( 13) discourage number of ex-rays ordered and lab work ordered
( 14) decreased time spent at lunchtime meetings
( 15) less committees with more efficiency
( 16) interrelating with other campus organizations
( 17) more integration among all UHS staff
( 18) find ways to increase staff morale, especially during burn-out times (e.g., end of year crunch
( 19) reduce missed appointment time
( 20) open to families of staff and students
( 21) expanded laboratory services
( 22) preventive medicine on out reach programs, i.e., vaccination clinics
( 23) centralized dictation available to everyone in building
( 24) Team approach to seeing patients. Assign patients to team by alphabet.
( 25) more effective scheduling of clinic hours
( 26) who are our patients?
( 27) increase population?
( 28) provide pediatric care with expanded staff
( 29) centralized dictation for charts
( 30) limit costs for students
( 31) less pressure on staff
( 32) better communications among UHS departments
( 33) lunch hours without meetings
( 34) improve transfer of medical records -- decrease lost charts, decrease misfiled lab slips
( 35) better orientation for new staff
( 36) increase sense of responsibility toward one's job
( 37) implement new system to give lab results
( 38) prompt attendance (staff, clients, etc.) at work and meetings
( 39) promote more 'positive image' for UHS
( 40) more interdisciplinary involvement
( 41) more rigid adherence to CNU (overnight unit) purpose
( 42) more staff, less workload

Figure 29 (continued)
University Health Services Conceptualization

( 43) more availability of journals, books, etc.
( 44) more follow-up re: patient care/outcome
( 45) re-evaluation of shifts
( 46) more minorities on medical/nursing/support staff
( 47) prompt services
( 48) encourage students to take responsibility for their own health
( 49) more staff availability to answer client questions
( 50) continuing education for staff
( 51) student advisors to UHS
( 52) improve floor plan - direction to various departments
( 53) improve system for dispensing medications
( 54) staggered lunch hours to allow UHS to be open at noon
( 55) provide best total health care with minimum inconvenience to staff and students
( 56) better advertisements for faculty/staff about services provided
( 57) assure confidentiality
( 58) expand preventive health care teaching to the Cornell Community
( 59) get more employees and students involved in decision making process
( 60) create more 12-month positions and less 9-month positions
( 61) stay open during lunch hour
( 62) be sensitive to the people we serve, e.g., international, minority groups, etc.
( 63) financial aid for needy patients
( 64) increase parking spaces for patients
( 65) clinicians should be more aware of students' lack of time for waiting for care
( 66) eliminate private physicians
( 67) clinicians should instruct patients better on policy and procedures
( 68) longer lunch hours (one hour minimum)
( 69) increase educational activities
( 70) increase staff in Psych Service
( 71) develop self-care cold unit
( 72) fewer hassles from administration
( 73) provide better soundproofing in therapy rooms in Psych. Service
( 74) more openness re: salaries
( 75) offer all clinic services to staff as well as students
( 76) increase computerization
( 77) responsive to ethnic/language problems
( 78) develop patient bill-of-rights
( 79) have a fast, same-day low wait service
( 80) increase maintenance staff to improve upkeep of building
( 81) Have CGSS rely less on volunteer help - would be better if a regularly employed health assistant was present. (Volunteers are unreliable, work-study isn't much

Figure 29 (continued)
University Health Services Conceptualization

better.
( 82) promote salary equity - new employee vs. old employee
( 83) prompt in meetings
( 84) have a night custodial and maintenance crew when ONU is open
( 85) expand services
( 86) provide OB/GYN care for spouses
( 87) extend service hours
( 88) increase appointment times for patients (longer appointments)
( 89) make building bigger and add staff
( 90) updated equipment
( 91) staff morale - positive stroking
( 92) utilize more 12-month staff when possible
( 93) provide continuing education for all staff with full cooperation of administration
( 94) better computer system a. more cross-training on computers b. more access to computers by staff
( 95) provide adequate patient parking
( 96) provide dental care
( 97) provide consumer education
( 98) foster student responsibility for their physical and mental health
( 99) more interactive with other areas of the university, e.g., nutrition, housing, dining
( 100) promote more liaison between clinic personnel and academic departments

Figure 30

University Health Services

Sort Instructions
Part I

May 16-17, 1984

Instructions: You will be given a stack of index cards each of which has a single statement on it. The statements are all from the list which you generated at the brainstorming sessions on May 8, 9, and 10. What we would like you to do is to sort these statements into groups or piles in a way that makes sense to you. You may have as many piles as you feel you need as long as you don't put all items into one pile or all items by themselves. We suggest that you look the cards over briefly to get a sense of the types of items which are included and then begin to group them. Feel free to move items around and change your categories until you feel comfortable with the groups you have created. There is no single sort which is "correct" — we expect different people will have different ways of thinking about the sorting. When you are satisfied with the piles, please order the cards within each pile from the lowest to highest according to the number at the end of each statement.

When you have finished the ordering, please fill out the table on the following page. In the first column simply write down a pile or group number. If you finished with four piles, for instance, you should record the numbers 1 through 4 down the first column. To the right of each pile number, list the number(s) of each card sorted into that pile (i.e., the number at the end of each statement on each card). Please separate each number with a comma. Also, please write legibly — the analysts must be able to distinguish between 1's and 7's, 3's and 5's, etc.

Example

(These are fictitious card numbers used only for this example.)

| PILE NUMBER | STATEMENTS SORTED INTO THAT PILE |
|---|---|
| 1 | 139, 160, 172, 186, 193, 215, 223, 237, 256, 277, 294, 306, 321, 357 |
| 2 | 152, 178, 184, 192, 217, 255, 261, 299, 300, 314 |

When you have completed this sorting task, there will be another instruction sheet describing the next task.

Figure 30 (continued)

University Health Services

Sort Recording Sheet
Part I

May 16-17, 1984

| PILE NUMBER | STATEMENTS SORTED INTO THAT PILE |
|---|---|

Figure 30 (continued)

University Health Services

Sort Instructions
Part II

May 16-17, 1984

Instructions: We would like you to think about each of the piles which you created and try to come up with a short name or description which will characterize the pile. As on the previous page, please record the pile number in the left-hand column. To the right of each pile, write in the name or short description you give the pile.

| PILE NUMBER | NAME OR SHORT DESCRIPTION |
|---|---|

Figure 31

UNIVERSITY HEALTH SERVICES RATING SHEET -- May 16-17, 1984

_____UHS should be supportive to staff (1)

_____better time managment (2)

_____drug and alcohol abuse counselor (3)

_____health care for staff and family (4)

_____improve the public image of UHS (5)

_____provide high quality health care to students and staff (6)

_____expand in health education efforts (7)

_____expand services for faculty, staff and family in a bigger building (8)

_____increase continued medical education for nurses (9)

_____promote increased educational opportunities for staff (10)

_____more acknowledgement of staff accomplishments; more positive feedback (11)

_____discourage non-emergency visits to clinic during non-appointment hours (12)

_____discourage number of ex-rays ordered and lab work ordered (13)

_____decreased time spent at lunchtime meetings (14)

_____less committees with more efficiency (15)

_____interrelating with other campus organizations (16)

_____more integration among all UHS staff (17)

_____find ways to increase staff morale, especially during burn-out times (e.g., end of year crunch) (18)

_____reduce missed appointment time (19)

_____open to families of staff and students (20)

_____expanded laboratory services (21)

_____preventive medicine on out reach programs, i.e., vaccination clinics (22)

_____centralized dictation available to everyone in building (23)

_____Team approach to seeing patients. Assign patients to team by alphabet. (24)

_____more effective scheduling of clinic hours (25)

_____who are our patients? (26)

_____increase population? (27)

_____provide pediatric care with expanded staff (28)

_____centralized dictation for charts (29)

_____limit costs for students (30)

_____less pressure on staff (31)

_____better communications among UHS departments (32)

_____lunch hours without meetings (33)

_____improve transfer of medical records -- decrease lost charts, decrease misfiled lab slips (34)

_____better orientation for new staff (35)

Figure 31 (continued)



_____increase sense of responsibility toward one's job (36)

_____implement new system to give lab results (37)

_____prompt attendance (staff, clients, etc.) at work and meetings (38)

_____promote more 'positive image' for UHS (39)

_____more interdisciplinary involvement (40)

_____more rigid adherence to ONU (overnight unit) purpose (41)

_____more staff, less workload (42)

_____more availability of journals, books, etc. (43)

_____more follow-up re: patient care/outcome (44)

_____re-evaluation of shifts (45)

_____more minorities on medical/nursing/support staff (46)

_____prompt services (47)

_____encourage students to take responsibility for their own health (48)

_____more staff availability to answer client questions (49)

_____continuing education for staff (50)

_____student advisors to UHS (51)

_____improve floor plan - direction to various departments (52)

_____improve system for dispensing medications (53)

_____staggered lunch hours to allow UHS to be open at noon (54)

_____provide best total health care with minimum inconvenience to staff and students (55)

_____better advertisements for faculty/staff about services provided (56)

_____assure confidentiality (57)

_____expand preventive health care teaching to the Cornell Community (58)

_____get more employees and students involved in decision making process (59)

_____create more 12-month positions and less 9-month positions (60)

_____stay open during lunch hour (61)

_____be sensitive to the people we serve, e.g. international, minority groups, etc. (62)

_____financial aid for needy patients (63)

_____increase parking spaces for patients (64)

_____clinicians should be more aware of students' lack of time for waiting for care (65)

_____eliminate private physicians (66)

_____clinicians should instruct patients better on policy and procedures (67)

_____longer lunch hours (one hour minimum) (68)

_____increase educational activities (69)

_____increase staff in Psych Service (70)

_____develop self-care cold unit (71)

_____fewer hassles from administration (72)

Figure 31 (continued)



_____provide better soundproofing in therapy rooms in Psych Service (73)

_____more openness re: salaries (74)

_____offer all clinic services to staff as well as students (75)

_____increase computerization (76)

_____responsive to ethnic/language problems (77)

_____develop patient bill-of-rights (78)

_____have a fast, same-day low wait service (79)

_____increase maintenance staff to improve upkeep of buildings (80)

_____have CGSS rely less on volunteer help - would be better if a regularly employed health assistant was present (Volunteers are unreliable, work-study isn't much better.) (81)

_____promote salary equity - new employee vs. old employee (82)

_____prompt in meetings (83)

_____have a night custodial and maintenance crew when ONU is open (84)

_____expand services (85)

_____provide OB/GYN care for spouses (86)

_____extend service hours (87)

_____increase appointment times for patients (longer appointments) (88)

_____make building bigger and add staff (89)

_____updated equipment (90)

_____staff morale - positive stroking (91)

_____utilize more 12-month staff when possible (92)

_____provide continuing education for all staff with full cooperation of administration (93)

_____better computer system a. more cross-training on computers, b. more access to computers by staff (94)

_____provide adequate patient parking (95)

_____provide dental care (96)

_____provide consumer education (97)

_____foster student responsibility for their physical and mental health (98)

_____more interactive with other areas of the university, e.g. nutrition, housing, dining (99)

_____promote more liaison between clinic personnel and academic departments (100)

Figure 32

UHS Conceptualization

Agenda

June 6, 1984

I. Conceptualization Interpretation

A. Cluster Lists (10 min.)
B. Concept Map (10 min.)
C. Naming of Clusters - small groups (30 min.)
D. Consensus on Cluster Names (30 min.)
E. Discussion of Regions (10 min.)
F. Interpretation and Comments (10 min.)

II. Priorities Interpretation

A. Presentation of priority data (10 min.)
B. Develop action statements (50 min.)
C. Wrap-up (5 min.)

Figure 33

UHS CLUSTER 1

increase appointment times for patients (longer appointments) (88) (.9036) (2.54)
have a fast, same-day low wait service (79) (.8944) (3.29)
prompt services (47) (.8536) (4.16)
extend service hours (87) (.7658)(2.55)
Team approach to seeing patients. Assign patients to team by alphabet. (24) (.7322) (2.37)
discourage non-emergency visits to clinic during non-appointment hours (12) (.7192) (3.71)
more interdisciplinary involvement (40) (.357)(3.21)
more staff availability to answer client questions (49) (.2865)(3.69)

Cluster Mean = 3.1752

Figure 33 (continued)

UHS CLUSTER 2

centralized dictation for charts (29) (.8908) (3.10)
better computer system a. more cross-training on computers b. more access to computers by staff (94) (.8776) (3.48)
centralized dictation available to everyone in building (23) (.8751) (3.16)
increase computerization (76) (.8736) (3.36)
updated equipment (90) (.871) (3.97)
improve transfer of medical records -- decrease lost charts, decrease misfiled lab slips (34) (.8275) (4.01)
implement new system to give lab results (37) (.7682) (3.31)
improve system for dispensing medications (53) (.6618) (3.19)
expanded laboratory services (21) (.5362) (3.03)
increase educational activities (69) (.1988) (3.33)

Cluster Mean = 3.3966

Figure 33 (continued)

UHS CLUSTER 3

find ways to increase staff morale, especially during burn-out times (e.g., end of year crunch (18) (.9783) (4.37)
more acknowledgement of staff accomplishments; more positive feedback (11) (.9716) (4.15)
staff morale - positive stroking (91) (.9689) (4.32)
UHS should be supportive to staff (1) (.9661) (4.72)
less pressure on staff (31) (.9627) (4.01)
fewer hassles from administration (72) (.9496) (3.49)
increase sense of responsibility toward one's job (36) (.9333) (3.74)
more openness re: salaries (74) (.9327) (3.14)
promote salary equity - new employee vs. old employee (82) (.9196) (3.90)
more integration among all UHS staff (17) (.9043) (3.72)
better orientation for new staff (35) (.8655) (3.71)
better communications among UHS departments (32) (.8107) (4.32)

Cluster Mean = 3.9661

Figure 33 (continued)

UHS CLUSTER 4

more interactive with other areas of the university, e.g., nutrition, housing, dining (99) (.8679) (3.47)
promote more liaison between clinic personnel and academic departments (100) (.8598) (3.46)
improve the public image of UHS (5) (.836) (4.16)
interrelating with other campus organizations (16) (.8228) (3.24)
better advertisements for faculty/staff about services provided (56) (.6264) (3.68)
promote more 'positive image' for UHS (39) (.5967) (4.12)
student advisors to UHS (51) (.4924) (3.10)
get more employees and students involved in decision making process (59) (.3872) (3.49)
eliminate private physicians (66) (.3119) (2.46)
expand preventive health care teaching to the Cornell Community (58) (.3113) (3.50)

Cluster Mean = 3.4668

Figure 33 (continued)

UHS CLUSTER 5

foster student responsibility for their physical and mental health (98) (.8608) (3.82)
encourage students to take responsibility for their own health (48) (.8337) (4.16)
preventive medicine on out reach programs, i.e., vaccination clinics (22) (.7735) (3.25)
develop patient bill-of-rights (78) (.7133) (3.16)
provide consumer education (97) (.6752) (3.32)
responsive to ethnic/language problems (77) (.6388) (3.77)
develop self-care cold unit (71) (.5762) (2.36)
Drug and Alcohol abuse counselor (3) (.5633) (3.07)
be sensitive to the people we serve, e.g., international, minority groups, etc. (62) (.5352) (4.16)

Cluster Mean = 3.4521

Figure 33 (continued)

UHS CLUSTER 6

open to families of staff and students (20) (.9352) (2.91)
offer all clinic services to staff as well as students (75) (.9216) (3.38)
healthcare for staff and family (4) (.9149) (3.29)
provide OB/GYN care for spouses (86) (.901) (3.05)
provide pediatric care with expanded staff (28) (.88) (1.91)
expand services for faculty, staff, and family in a bigger building (8) (.8768) (3.10)
provide dental care (96) (.8584) (2.84)
increase population? (27) (.8101) (2.13)
expand services (85) (.7608) (3.06)
who are our patients? (26) (.6427) (2.94)

Cluster Mean = 2.8625

Figure 33 (continued)

UHS CLUSTER 7

continuing education for staff (50) (.9838) (3.74)
promote increased educational opportunities for staff (10) (.9831) (3.91)
provide continuing education for all staff with full cooperation of administration (93) (.9716) (3.97)
increase cont. med. ed for nurses (9) (.9712) (3.71)
more availability of journals, books, etc. (43) (.8942) (2.74)

Cluster Mean = 3.6115

Figure 33 (continued)

UHS CLUSTER 8

more effective scheduling of clinic hours (25) (.8795) (3.46)
stay open during lunch hour (61) (.8083) (2.67)
staggered lunch hours to allow UHS to be open at noon (54) (.8018) (2.79)
reduce missed appointment time (19) (.7537) (3.46)
discourage number of ex-rays ordered and lab work ordered (13) (.6085) (3.01)
more rigid adherence to ONU (overnight unit) purpose (41) (.6064) (3.06)
better time management (2) (.4883) (3.82)
expand in health education efforts (7) (.2011) (3.16)

Cluster Mean = 3.1804

Figure 33 (continued)

UHS CLUSTER 9

utilize more 12-month staff when possible (92) (.949) (3.94)
create more 12-month positions and less 9-month positions (60) (.9224) (3.49)
more staff, less workload (42) (.8803) (3.62)
more minorities on medical/nursing/support staff (46) (.872) (2.73)
increase staff in Psych Service (70) (.8031) (2.97)
Have CGSS rely less on volunteer help - would be better if a regularly employed health assistant was present. (Volunteers are unreliable, work-study isn't much better. (81) (.7431) (3.42)

Cluster Mean = 3.3612